

# Computer Science at Oxford

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Department of  
COMPUTER  
SCIENCE

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# Computer Science at Oxford

- What's Computer Science about?
- The Oxford courses



# Writing down the rules

1. Start with the two numbers to be multiplied in columns  $x$  and  $y$ , and 0 in column  $z$ .
2. Repeat until 0 appears in column  $x$ :
  - if  $x$  is odd, replace  $z$  by  $y + z$ .
  - replace  $x$  by  $x \div 2$  and  $y$  by  $2 \times y$ .
3. The answer appears in column  $z$ .

# Writing it as a computer program

$x := a; y := b; z := 0;$

**while**  $x \neq 0$  **do**

**if**  $ODD(x)$  **then**  $z := y + z$  **end;**

$x := x \div 2; y := 2 \times y$

**end;**

**return**  $z$

# Hang on a minute!

Why not just use this program:

**return**  $a \times b$

and have the multiplication done by an electronic circuit in the computer?

# Hang on a minute!

Why not just use this

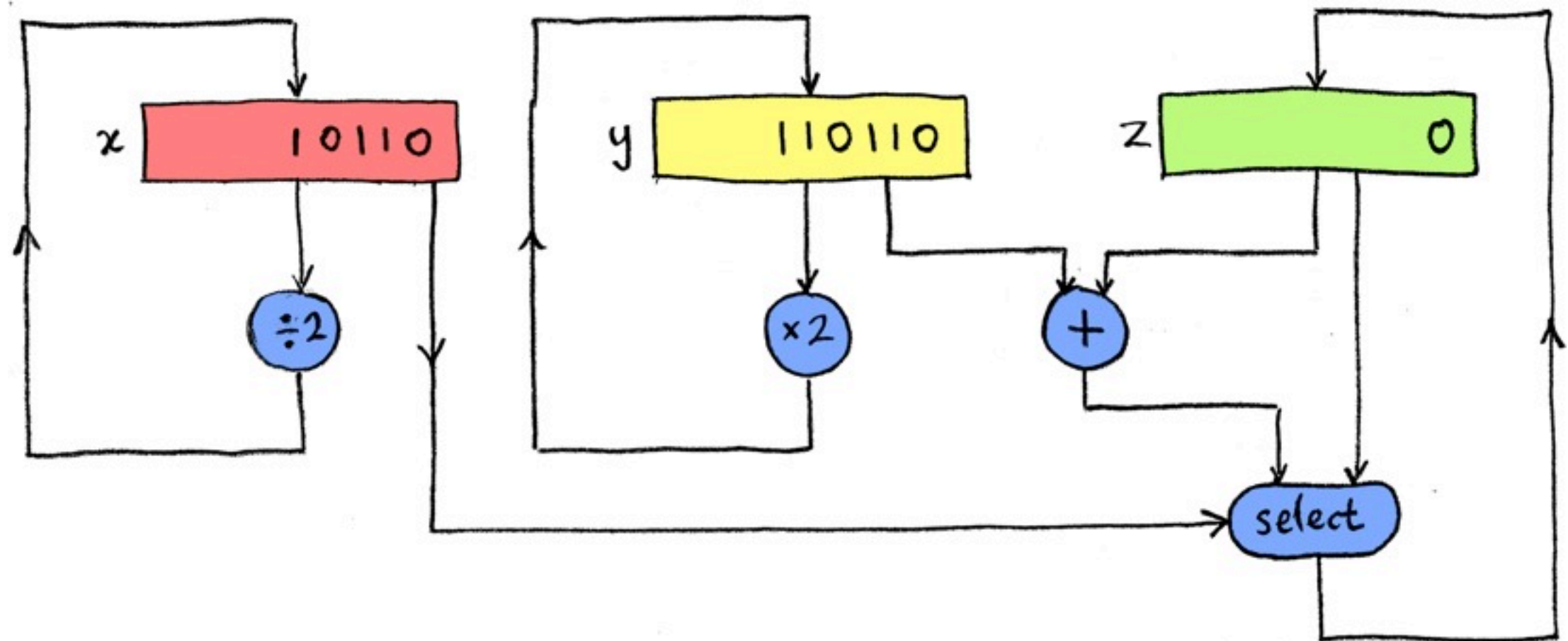


```
mul r0, r1, r2
```

**return**  $a \times b$

and have the multiplication done by an electronic circuit in the computer?

# A multiplication circuit





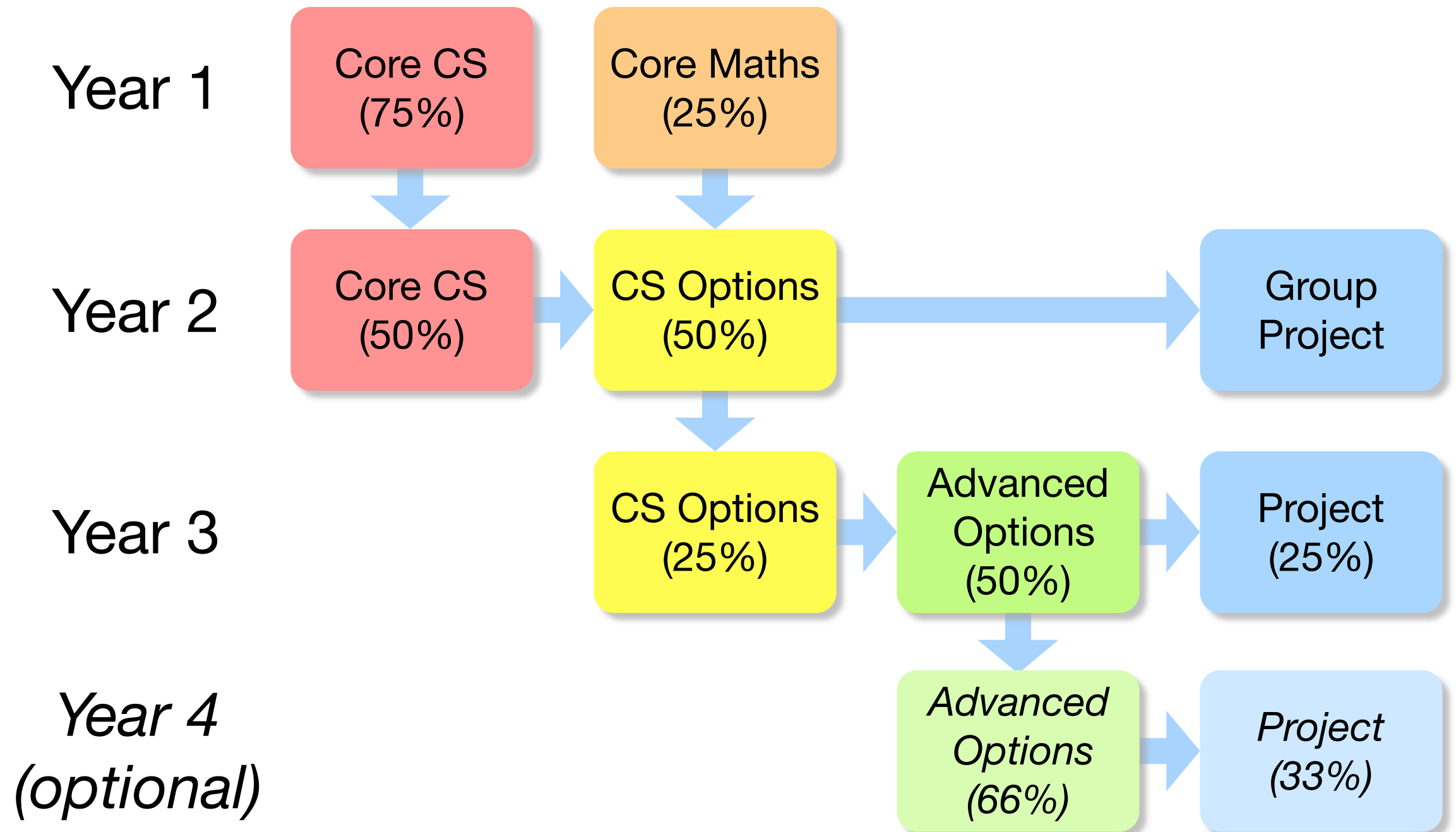
# Computer science

- It's *not* about learning new programming languages.
- It *is* about understanding why programs work, and how to design them.

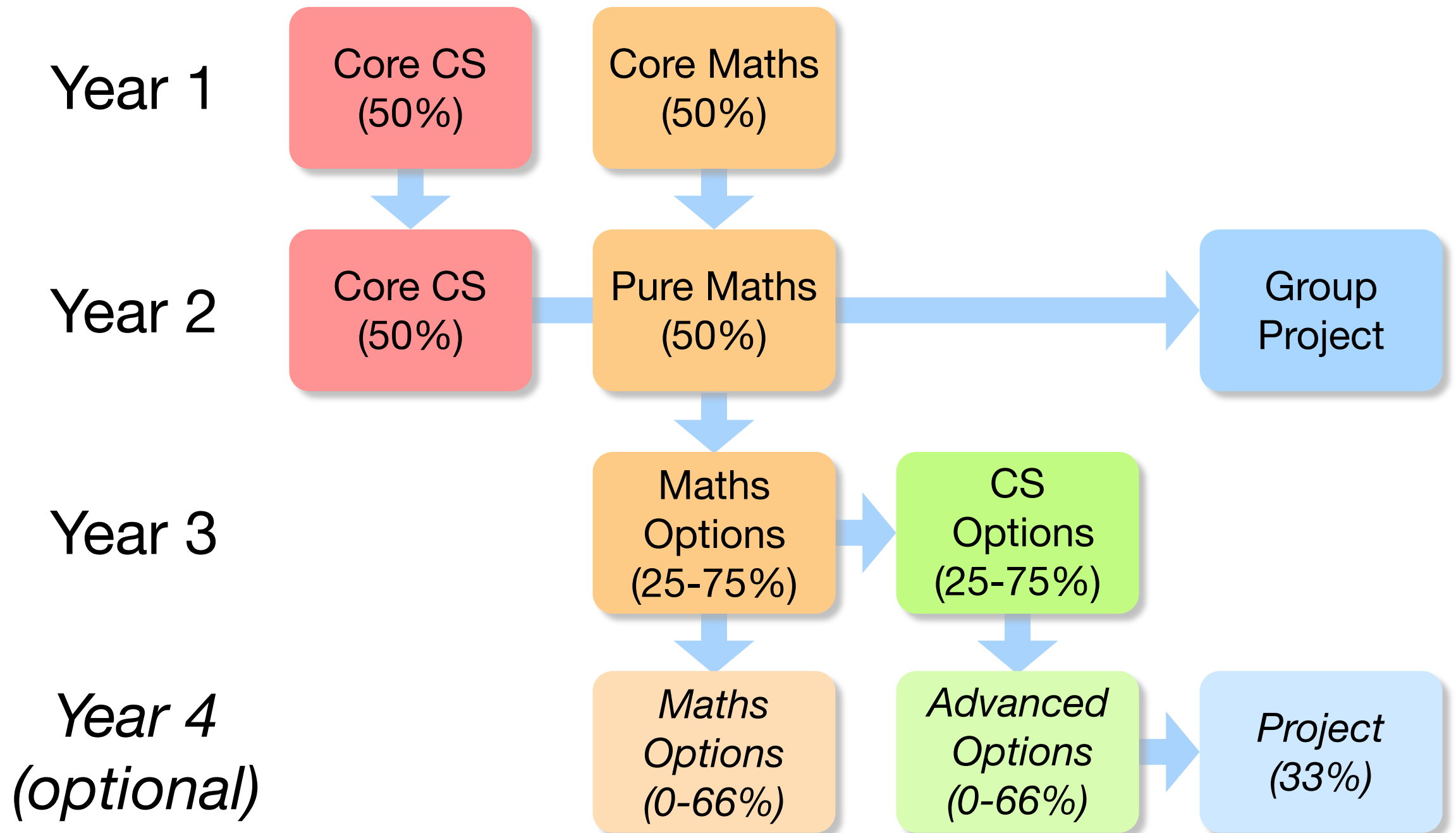
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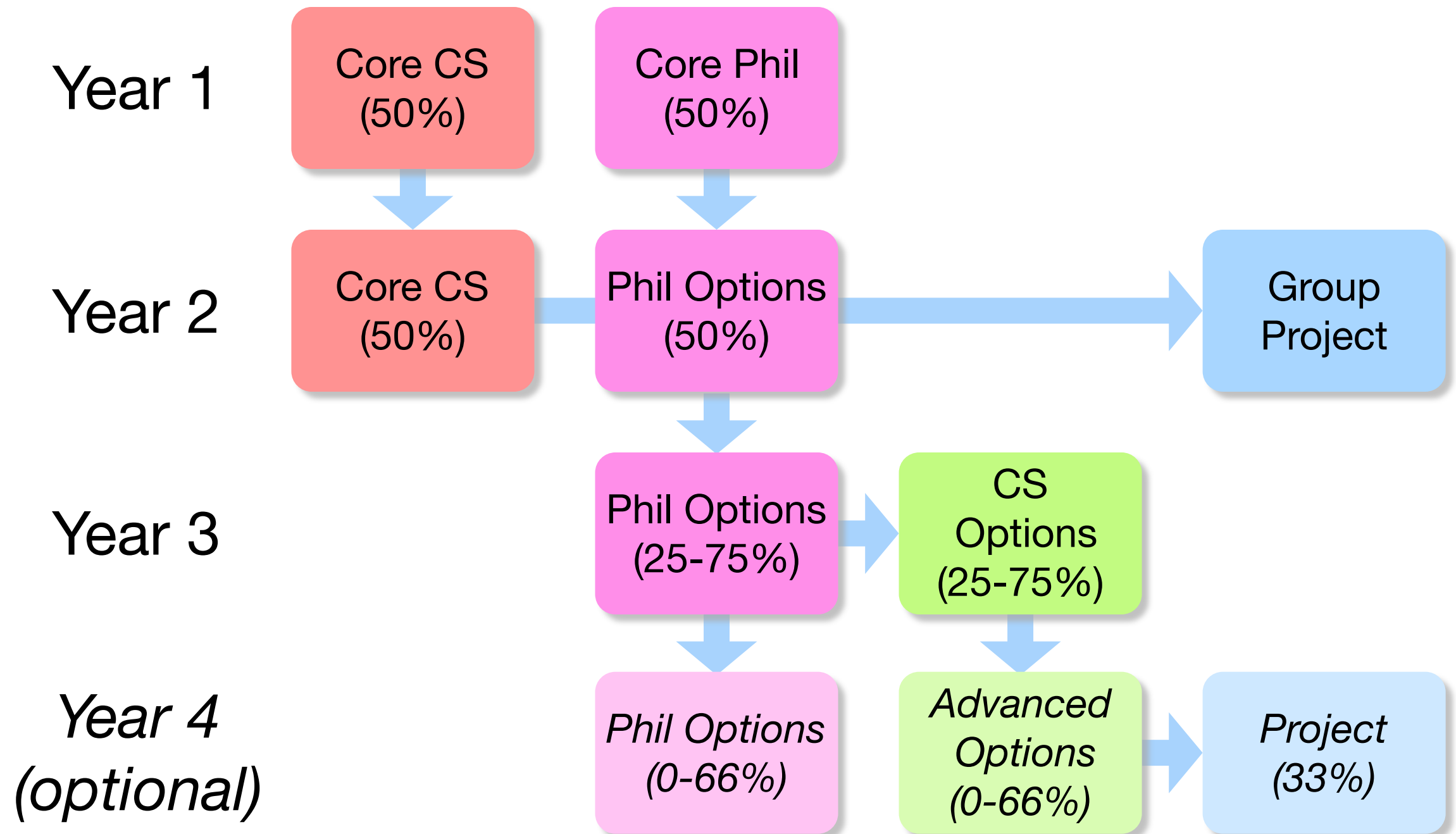
# Computer Science



# Maths & Computer Science



# Computer Science & Philosophy



# Why CS at Oxford?

- Computer Science from the start.

*You study just Computer Science from day one, and we assume no prior knowledge.*

- Principles behind the technology.

*You will learn the latest technology, but you will learn lasting principles as well.*

- Personally-tailored tuition.

*Like all Oxford degrees, our teaching revolves around paired or one-to-one tutorials.*

# Why Oxford?

## Academic

- A rigorous approach
- Able and keen fellow students
- Teaching from world experts

## Social

- Rooms, books, meals
- Sport, politics, music, drama
- Making friends for life

## Career

- Boundless opportunities await